

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

1 - 54. (Canceled)

55. (Currently Amended) A support arrangement comprising:

a vessel in the form of a core barrel of a high temperature gas cooled reactor which is housed within a reactor pressure vessel, the core barrel including a circular cylindrical side wall having an axis which extends vertically, the core barrel further including a top and a bottom;

a single vertical support for supporting the weight of the core barrel, the vertical support including separate upper and lower support members which are connected respectively to the bottom of the core barrel and the reactor pressure vessel between which vertical loads are transmitted, the upper and lower support members being centrally positioned about the axis and displaceable relative to one another under normal operation of the reactor, the upper and lower support members defining respectively downwardly and upwardly disposed contact surfaces through which the vertical loads are transmitted; and

lateral support means configured to provide lateral support to the core barrel, the lateral support means including a plurality of circumferentially spaced upper lateral supports configured to provide lateral support to the core barrel at or towards the top of

the core barrel, each of which includes a set of inner and outer lateral support members connected to the core barrel at or towards the top of the core barrel and the reactor pressure vessel, respectively, and a roller element having a circular cylindrical body and being sandwiched between oppositely disposed bearing surfaces of the inner and outer lateral support members, wherein the bearing surfaces of the inner and outer upper lateral support members face radially outwardly and inwardly, respectively, relative to the axis and are each inclined both upwardly and outwardly relative to the axis of the core barrel thereby permitting the inner lateral support members to be displaced upwardly and radially outwardly relative to the outer upper lateral support members while maintaining the support bearing surfaces in contact with the roller to compensate for thermal expansion of the core barrel.

56. (Currently Amended) A support arrangement comprising:

a vessel in the form of a core barrel of a high temperature gas cooled reactor which is housed within a reactor pressure vessel, the core barrel including a circular, cylindrical side wall having an axis which extends vertically, the core barrel further including a top and a bottom;

a single vertical support for supporting the weight of the core barrel, the vertical support including separate upper and lower support members which are connected respectively to the bottom of the core barrel and the reactor pressure vessel between which vertical loads are transmitted, the upper and lower support members being centrally positioned about the axis and displaceable relative to one another under

normal operation of the reactor, the upper and lower support members defining respectively downwardly and upwardly disposed contact surfaces through which the vertical loads are transmitted; and

lateral support means configured to provide lateral support to the core barrel, the lateral support means including a plurality of circumferentially spaced upper lateral supports configured to provide lateral support to the core barrel at or towards the top of the core barrel, each of which includes a set of inner and outer lateral support members connected to the core barrel at or towards the top of the core barrel and the reactor pressure vessel, respectively, each outer upper lateral support member being mounted on a support structure within the pressure vessel, said support structure ~~configured to deflect from an original configuration upon the application of a force and return to the original configuration upon removal of the force, the support structure~~ including a pair of support posts connected to an upper support ring secured to the reactor pressure vessel at spaced apart positions and a guide beam, wherein the guide beam is configured to elastically deform elastically in the manner of a leaf spring, and wherein the outer upper lateral support is configured to be mounted on the guide beam.

57. (Canceled)

58. (New) A support arrangement as claimed in claim 55, wherein at least one of the contact surfaces is curved so that relative movement between the contact surfaces is achieved by rolling.

59. (New) A support arrangement as claimed in claim 58, wherein both of the contact surfaces are curved.

60. (New) A support arrangement as claimed in claim 59, wherein the upper support member defines a downwardly facing concave contact surface, and the lower support member defines an upwardly facing convex contact surface.

61. (New) A support arrangement as claimed in claim 60, wherein the radius of curvature the convex contact surface is smaller than the radius of curvature of the concave contact surface.

62. (New) A support arrangement as claimed in claim 55, wherein the vertical support further includes an intermediate member interposed between the upper and lower support members.

63. (New) A support arrangement as claimed in claim 62, wherein the intermediate member defines upper and lower contact surfaces which cooperate, respectively, with downwardly and upwardly disposed contact surfaces of the upper and lower support members.

64. (New) A support arrangement as claimed in claim 63, wherein the contact surfaces of the intermediate member are convex, and the downwardly and upwardly disposed contact surfaces of the upper and lower support members are concave.

65. (New) A support arrangement as claimed in claim 64, wherein each convex contact surface has a radius of curvature which is smaller than a radius of curvature of the complementary concave contact surface of the upper and lower support members.

66. (New) A support arrangement as claimed in claim 55, wherein the roller element and at least one of the inner and outer upper lateral support members are provided with complementary teeth such that relative displacement between the roller element and complementary bearing surfaces of the inner and outer upper lateral support members is by rolling.

67. (New) A support arrangement as claimed in claim 55, wherein each outer upper lateral support member is mounted on a support which, in turn, is mounted on upper support ring secured to the reactor pressure vessel.

68. (New) A support arrangement as claimed in claim 67, in which the support includes a pair of support posts connected to the upper support ring at spaced apart

positions and a guide beam which extends between the support posts and on which the outer upper lateral support member is mounted.

69. (New) A support arrangement as claimed in claim 55, wherein the lateral support means further includes a plurality of circumferentially spaced lower lateral supports configured to provide lateral support to the core barrel adjacent a lower end thereof.

70. (New) A support arrangement as claimed in claim 69, wherein each lower lateral support includes a locating member extending radially between inner and outer receiving formations, and wherein each locating member is configured to transmit lateral loads between the core barrel and the reactor pressure vessel.

71. (New) A support arrangement as claimed in claim 70, wherein the inner receiving formations are provided on the upper support member and the outer receiving formations are protrusions which protrude radially inwardly from a lower support ring secured to the reactor pressure vessel.

72. (New) A support arrangement as claimed in claim 55, further including an auxiliary support means for supporting the core barrel within the reactor pressure vessel when subjected to exceptional loads.

73. (New) A support arrangement as claimed in claim 72, wherein the upper support member includes a central member which extends downwardly from the bottom of the core barrel and a plurality of angularly spaced support beams connected to the bottom of the core barrel and to the central member and extending radially outwardly from the central member, the auxiliary support means including a lower auxiliary support including a plurality of circumferentially spaced radially inwardly facing slots in which radially outer ends of the support beams are receivable with little clearance.

74. (New) A support arrangement as claimed in claim 73, wherein the slots are defined on a radially inner surface of a lower support ring secured to the reactor pressure vessel.

75. (New) A support arrangement as claimed in claim 72, wherein the upper support member includes a central member which extends downwardly from a bottom of the core barrel and a plurality of angularly spaced support beams connected to the bottom of the core barrel and to the central member and extending radially outwardly from the central member to an annular skirt which depends from the core barrel, wherein the auxiliary support means includes a lower auxiliary support which includes a plurality of circumferentially spaced protrusions which protrude radially inwardly from a lower support ring secured to the reactor pressure vessel and which are received, with little clearance, in complementary slots in the skirt.

76. (New) A support arrangement as claimed in claim 72, wherein the auxiliary support means includes an upper auxiliary support comprising a plurality of circumferentially spaced ribs connected to and protruding outwardly from the core barrel and complementary slots provided in and opening out of a radial inner surface of the upper support ring, wherein end portions of the ribs are receivable within the slots with little clearance.

77. (New) A support arrangement as claimed in claim 56, in which the position of the guide beam is adjustable such that the relative positions of the inner and outer upper lateral support members are adjustable.